

ABSTRACT

The group of inventions is used for a medical clinical practice for automatically measuring a human eye aberration, determining a subjective visual acuity associated with the selection of a best spherocylindrical correction, investigating the influence of high orders aberrations on the visual acuity and for prognosticating the eye correction results. The inventive aberrometer comprises a point light source which is projected on the eye retina and forms a virtual source thereon whose radiation is dispersed by said retina and passes through the eye optical systems acquiring a phase modulation corresponding to the total eye optical aberration. Said aberrometer also comprises a system for measuring the shape of the radiation wave front coming out from the eye which is embodied in the form of a wave front sensor whose output signal is transmitted to a device control system, an aberration compensation system which is disposed between the human eye and an measuring system and through which the radiation coming out from the eye and projected on the eye retina of the virtual source passes and a test picture projector which projects the test picture image on the eye retina. In the particular embodiments, said aberrometer is provided with an additional adjusting, self-calibrating and self-testing system, wherein the aberrometer control system can be complemented with a microprocessor controller. The inventive method for setting the aberrometer consists in establishing a required distance between the device and a patient eye by illuminating the eye, in projecting a mark picture on the iris thereof and in visually observing the relative positions of the projected mark pictures and the three-dimensional displacement of the device and/or the eye with respect thereto